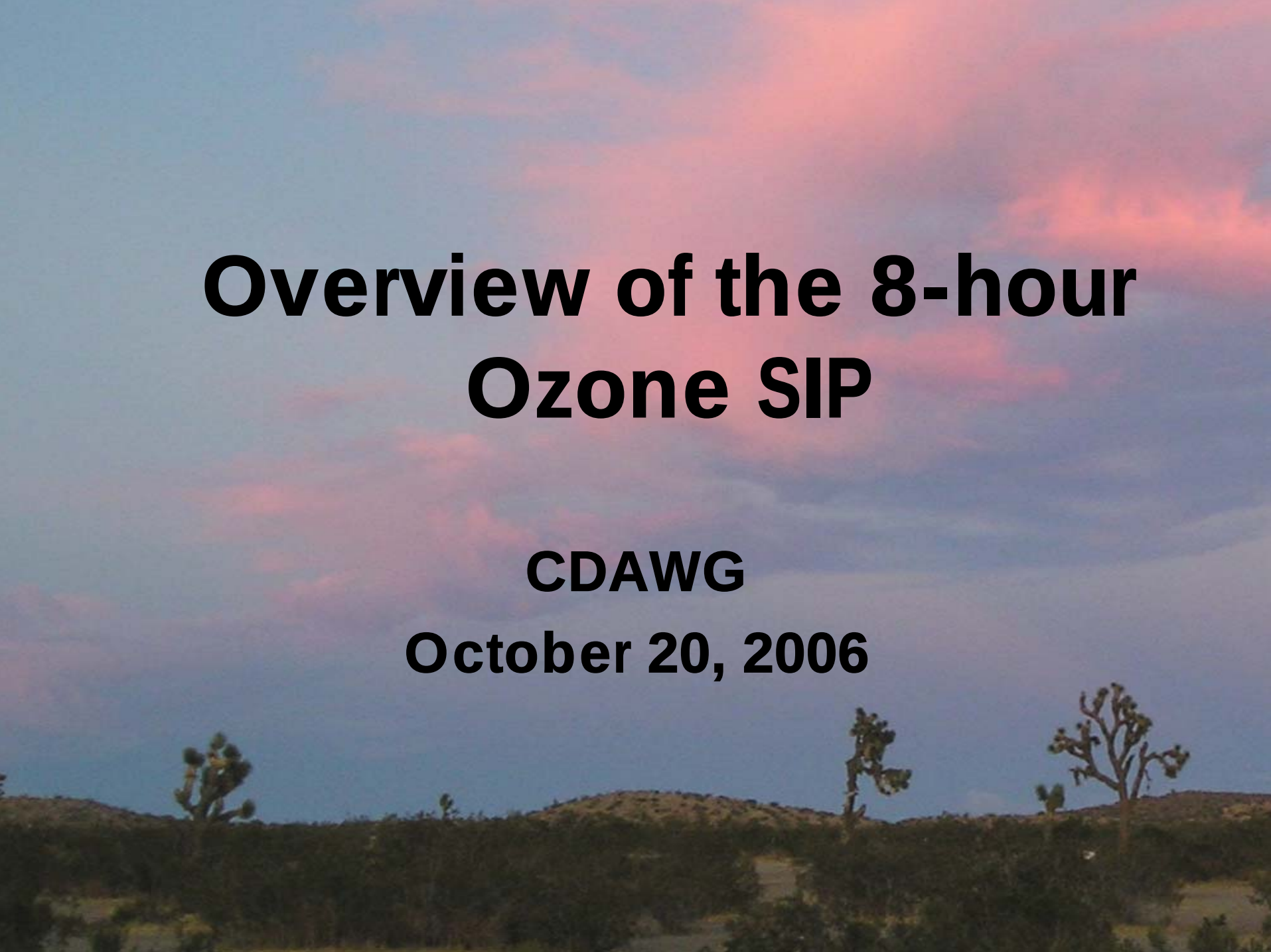


Overview of the 8-hour Ozone SIP

CDAWG

October 20, 2006

Air Quality Agencies

- Environmental Protection Agency (EPA): Federal agency with overall responsibility for air quality and approves/disapproves SIPs. Has primary control authority over planes , trains, ships and other large mobile sources.
- California Air Resources Board (ARB): State agency with the overall responsibility for air quality. Submits plans to EPA and has specific responsibilities for mobile and consumer sources.
- APCDs and AQMDs: Local district with primary responsibility for stationary sources. Local district develops plans in coordination with other agencies and submits to ARB

Federal Clean Air Act (FCAA)

- Core of current act adopted in 1970 amendments; substantially amended in 1990 with additional requirements, classifications and extended deadlines
- Preventing and controlling air pollution is primarily the responsibility of state and local government with federal oversight
- Sets general requirements for what SIPS must include, EPA interprets FCAA and provides more specifics in guidance and implementation rules
- Remedies include sanctions and federal takeover if insufficient actions by states; citizen suits if EPA fails to take action or enforce

Federal Clean Air Act (cont.)

- National Emission Standards for Hazardous Air Pollutants (NESHAPS)
- New Source Performance Standards (NSPS)
- Nonattainment areas need lowest achievable emission rate (LAER) for new sources
- Attainment areas use prevention of significant deterioration (PSD)
- Requires regular reviews for National Ambient Air Quality Standards (NAAQS) for criteria air pollutants

History of Federal National Ambient Ozone Standard (NAAQS)

- 1-hr ozone NAAQS (.12 ppm) promulgated 1979 and revoked 2004
- 8-hr ozone NAAQS (.08 ppm) promulgated 1997
- Final 8-hr. designations & classifications signed 4/15/04, effective 6/15/2004
- 8-hr. classification scheme originates in April 2004 implementation rule, final rule November 29, 2005
- Based on the 1-hr approach
- Control requirements tied to the applicable subpart and the area's classification

Ozone Air Quality Standards

Federal Ozone NAAQS

- 0.08 ppm averaged over 8 hours
- 4^{th} daily high averaged over 3 years
- 0.085 ppm is an actual exceedence

State Ozone Standards

- 0.09 ppm averaged over 1 hour
- 0.070 ppm averaged over 8 hours
- 0.095 ppm and 0.071 ppm are actual exceedances

What is a nonattainment area?

- *". . . any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the NAAQS"*

FCAA §107(d)(1)(A)(i)

How the areas sorted out

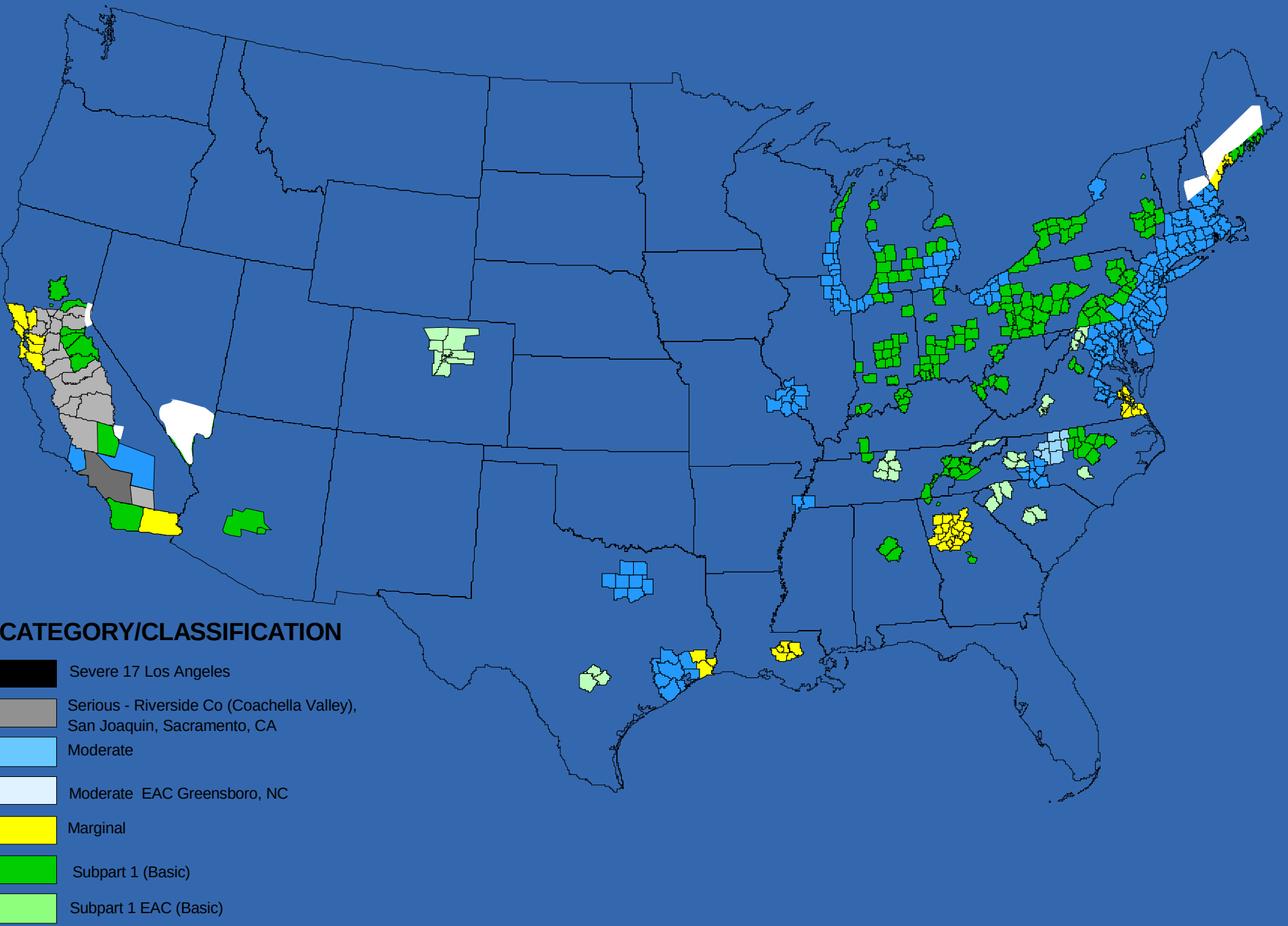
- 71 subpart 1 "Basic" areas*
  - Generally below .121 ppm (1-hr.)
  - Flexibility
- 41* subpart 2 areas
  - Have a classification
  - Mandated controls

*Excludes Early Action Compact areas

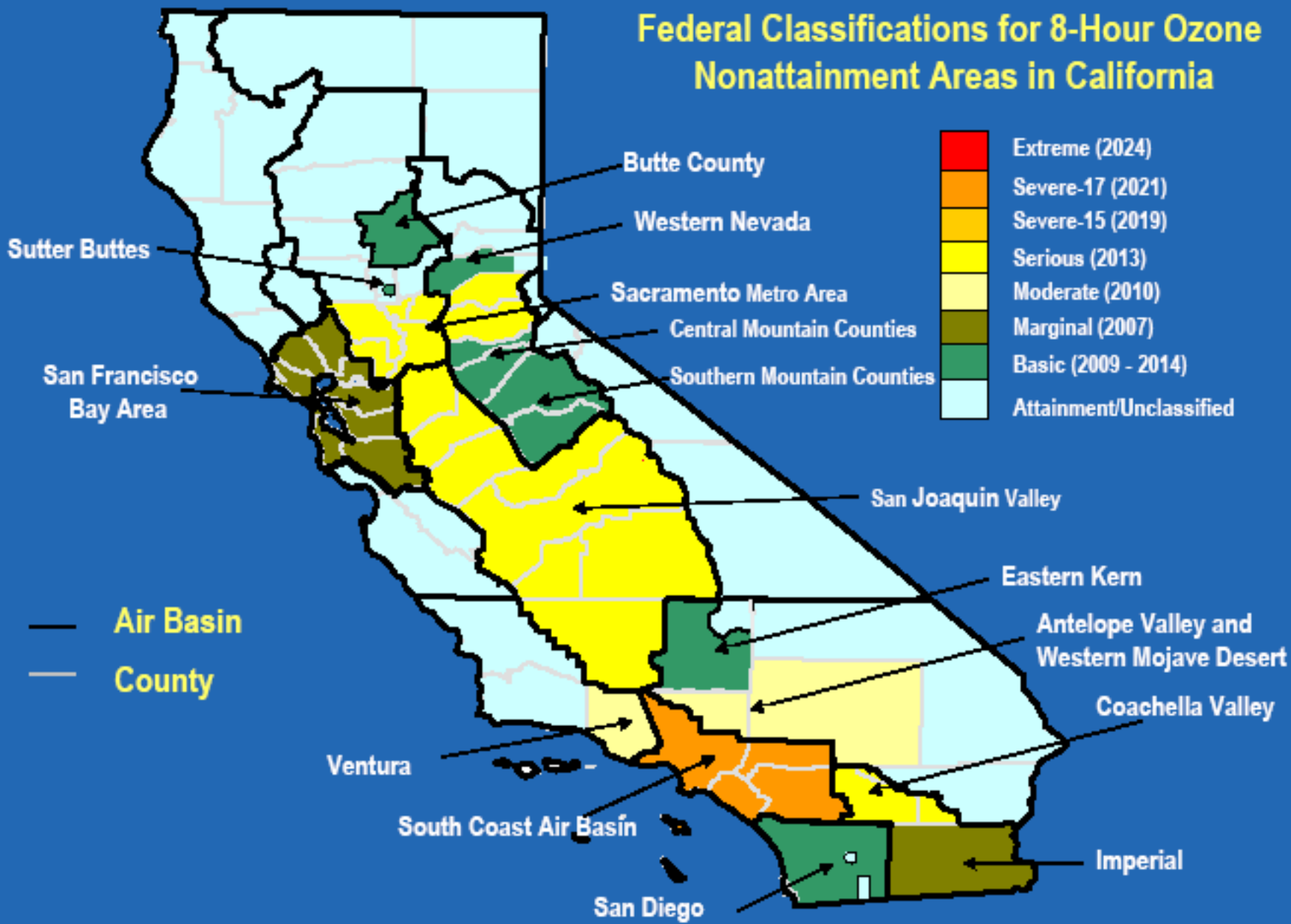
Attainment Dates

- Subpart 1 areas have 5 -10 years
- Subpart 2: based on classification
  - Marginal – 3
  - Moderate – 6
  - Serious – 9
  - Severe – 15
  - Extreme – 20

Classification of 8-hour Nonattainment Ozone Areas



8-hour Designations



State Implementation Plan (SIP)

- Collection of plans and regulation a state will use to reduce emissions -- lists all the pollution control measures needed to meet air quality goals
- All stakeholders are to be involved in development through a public process
- State has only one SIP with individual components for different areas and pollutants
- EPA must approve each SIP and individual component of a SIP

8-hour SIP Requirements
(70 FR 71612-71705, November 29, 2004)

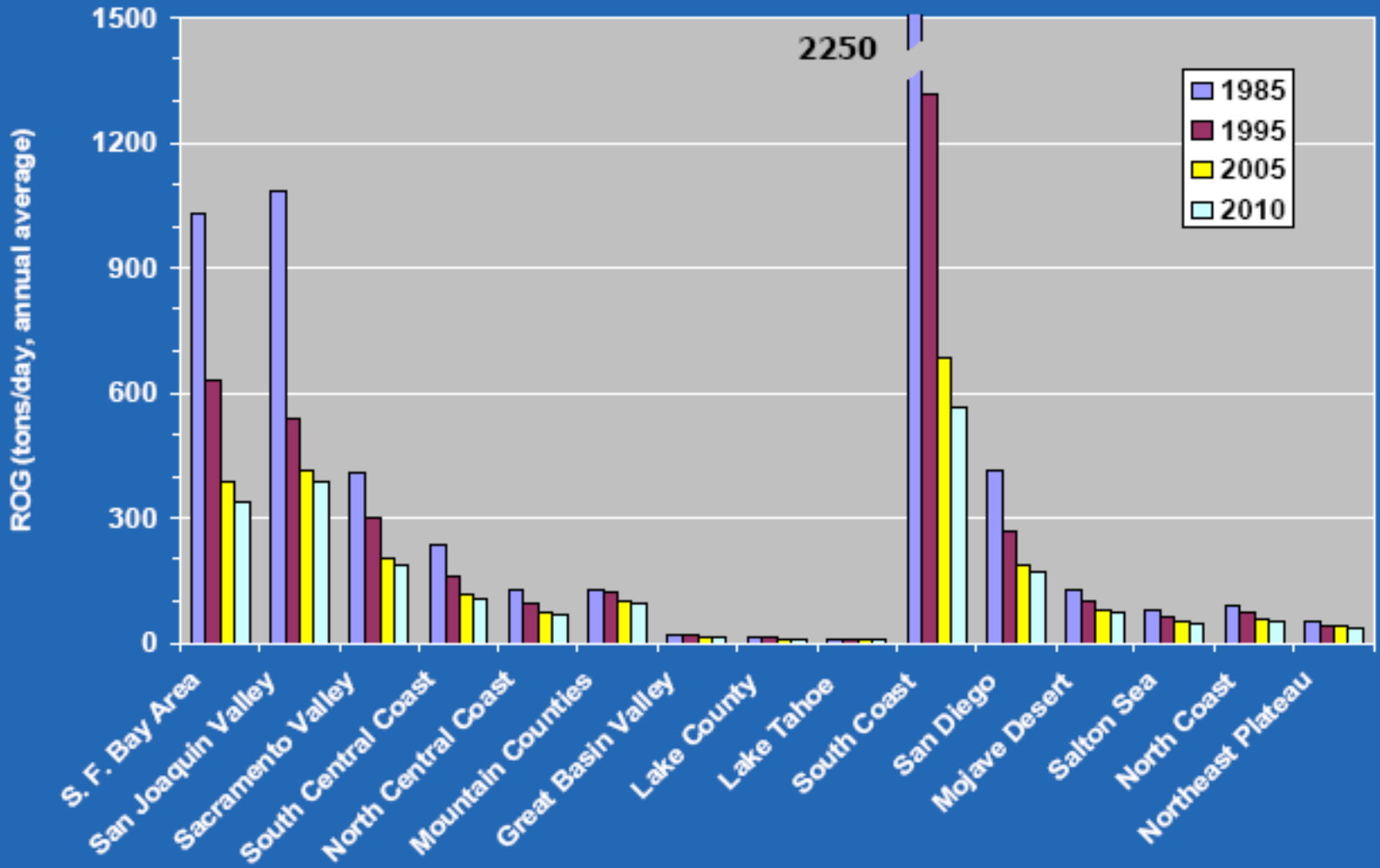
- Emission Inventory
- Attainment Demonstration
- New Source Review
- Reasonable Further Progress Demonstration
- Control Strategy (RACM, RACT & other necessary controls)
- Most Components Due June 15, 2007, Some Earlier

Emission Inventory Requirements

- EI for Subpart 2 areas due 2 yrs after designation 6/15/2006 §51.915
- EI for subpart 1 areas due 6/15/2007 §51.915
- Existing emissions reporting requirements remain the same for emissions inventories under 8-hour ozone §51.915
- An area can defer a hearing on the EI until the hearing on the attainment or RFP SIP

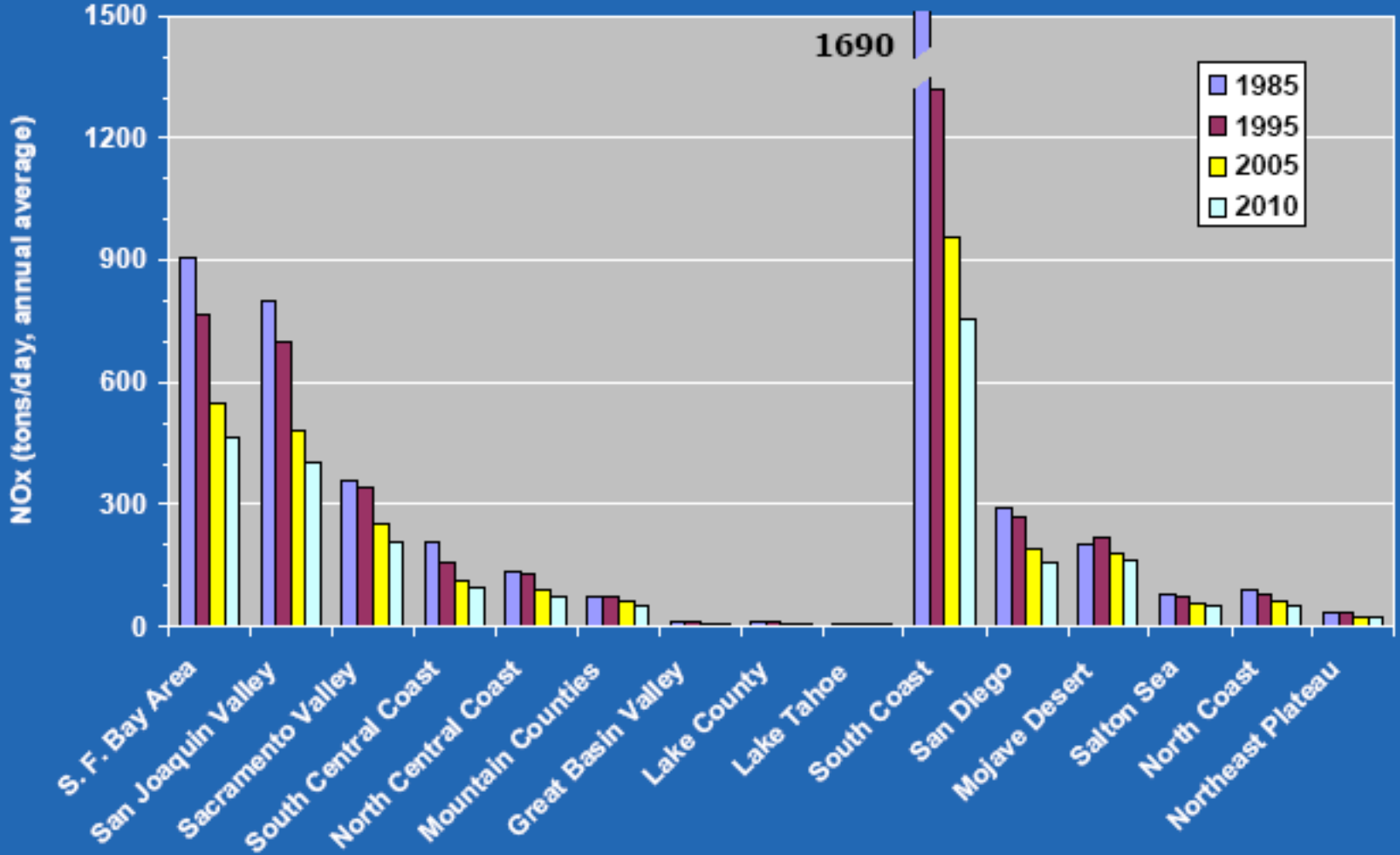
Emission Trends – ROG

Anthropogenic Only (tons/day)



Emission Trends – NOx

(tons/day)



Attainment demonstrations & photochemical grid modeling

- All subpart 1 and 2 nonattainment areas are required to submit an attainment demonstration that relies on photochemical grid modeling or other analytical by 6/15/2006 §51.908
- EPA does not believe that techniques other than those based on photochemical grid modeling will provide credible assurance that an area will achieve the 8-hour ozone standard 70 FR 71627

New Source Review SIPs
§51165

- States not required to keep NSR SIP that applied under the 1-hr standard once 1-hr standard revoked
- NSR SIP revision due June 15, 2007 based on an area's classification and the Final NSR Rule that was included with the rule to Implement the 8-hr Ozone NAAQS
- EPA must approve the submitted 8-hr NSR SIPs before they apply.
- California districts generally are bifurcating NSR rules to maintain separate California requirements (SB288)

NSR (cont.)

- EPA anticipated that upon revocation of the 1-hour ozone NAAQS, area would submit requests for approval of SIP revisions removing NSR requirements based on the 1-hour classifications
- Emission limitations and other requirements already in major NSR permits issued under 1-hour NSR programs continued to be in force when the 1-hour NAAQS is revoked
  70 FR 71683 and 69 FR 23986

Minimum Requirements in Subpart 1 (Basic) Areas

§51.165

Major Stationary Source Threshold	100 tpy VOC/NOx
Significant Emission Rate	40 tpy VOC/NOx
Offset Ratio	At least 1:1

Minimum Major Stationary Source Subpart 2 Areas §51.165

Marginal	100 tpy VOC/NOx
Moderate	100 tpy VOC/NOx
Serious	50 tpy VOC/NOx
Severe 15/17	25 tpy VOC/NOx
Extreme	10 tpy VOC/NOx

Minimum Significant Emission Rate Subpart 2 Areas §51.165

Marginal	40 tpy VOC or NOx
Moderate	40 tpy VOC or NOx
Serious	25 tpy VOC or NOx
Severe 15/17	25 tpy VOC or NOx
Extreme	Any increase

Minimum Offset Ratios
Subpart 2 Areas §51.165

Marginal	At least 1.1:1
Moderate	At least 1.15:1
Serious	At least 1.2:1
Severe 15/17	At least 1.3:1
Extreme	At least 1.5:1

Reasonable Further Progress (RFP) §51.910

- Requires average of 3% reduction of VOC per year, generally in three year increments after the base year (2002) to ensure progress toward attainment prior to attainment
- Emission reductions from pre-1990 Federal motor vehicle control don't count for RFP
- RFP for subpart 1 areas
  - No RFP if attain by 6/15/2009
  - 15% from 2002 to 2008 and average 3% each year after 2008 until attainment
  - Area can substitute NOx for VOC in first 15% and later years

RFP for Subpart 2 Areas §51.910

- Areas never subject to 15% RFP under 1-hour ozone SIP
  - must reduce 15% VOC from 2002-2008
  - No NOx substitution for VOC in first 15%
  - After 2008 another 3% each year in three year increments until attainment (NOx substitution allowed)
- Areas that previously satisfied 15% RFP under 1-hour ozone SIP
  - must reduce an average of 3% each year from 2002-2008 and 3% per year in three year increments starting 2009 until attainment year
  - NOx substitution allowed
- Several options in the guidance if an 8-hour nonattainment area is bigger than original 1-hour nonattainment area

Control Strategies

- Reasonably Available Control Technology
- Reasonably Available Control Measures
- Other SIP Control Measures
- Contingency Measures

Reasonably Available Control Technology (RACT)
CAA 172(c)(1), 182(b)(2), & 182(f)

- Measures to ensure minimum level of emission control technology for stationary sources in nonattainment areas
- RACT is required for source for which a Control Technique Guideline (CTG) has been promulgated and for major non-CTG sources
- Negative declaration required, if no CTG sources in the area for that specific category
- RACT is required whether or not it will contribute to advancing attainment/RFP

RACT (cont.)

- RACT for subpart 1 areas §51.912 (c)
  - None if project attainment by 6/15/2009
  - Due with Attainment Demonstration SIP (6/15/2007) if area will attain after 6/15/2009
- RACT for subpart 2 areas due September 15, 2006 §51.912 (a)
  - Moderate or higher area RACT SIP due 9/15/2006
- Implementation no longer than 30 months after RACT SIP is due §51.912 (a)
- All RACT to be adopted at time of SIP submittal

Reasonably Available Control Measures (RACM)

- Area must demonstrate that it has adopted all RACM necessary to demonstrate attainment as expeditiously as practicable and to meet any RFP requirements §51.912
- RACM measures can apply to stationary or mobile
- A RACM Measure is one that will contribute to advancing attainment and/or meet RFP
- Control measures which might be available, but would not advance attainment by one year or contribute to RFP are not considered RACM

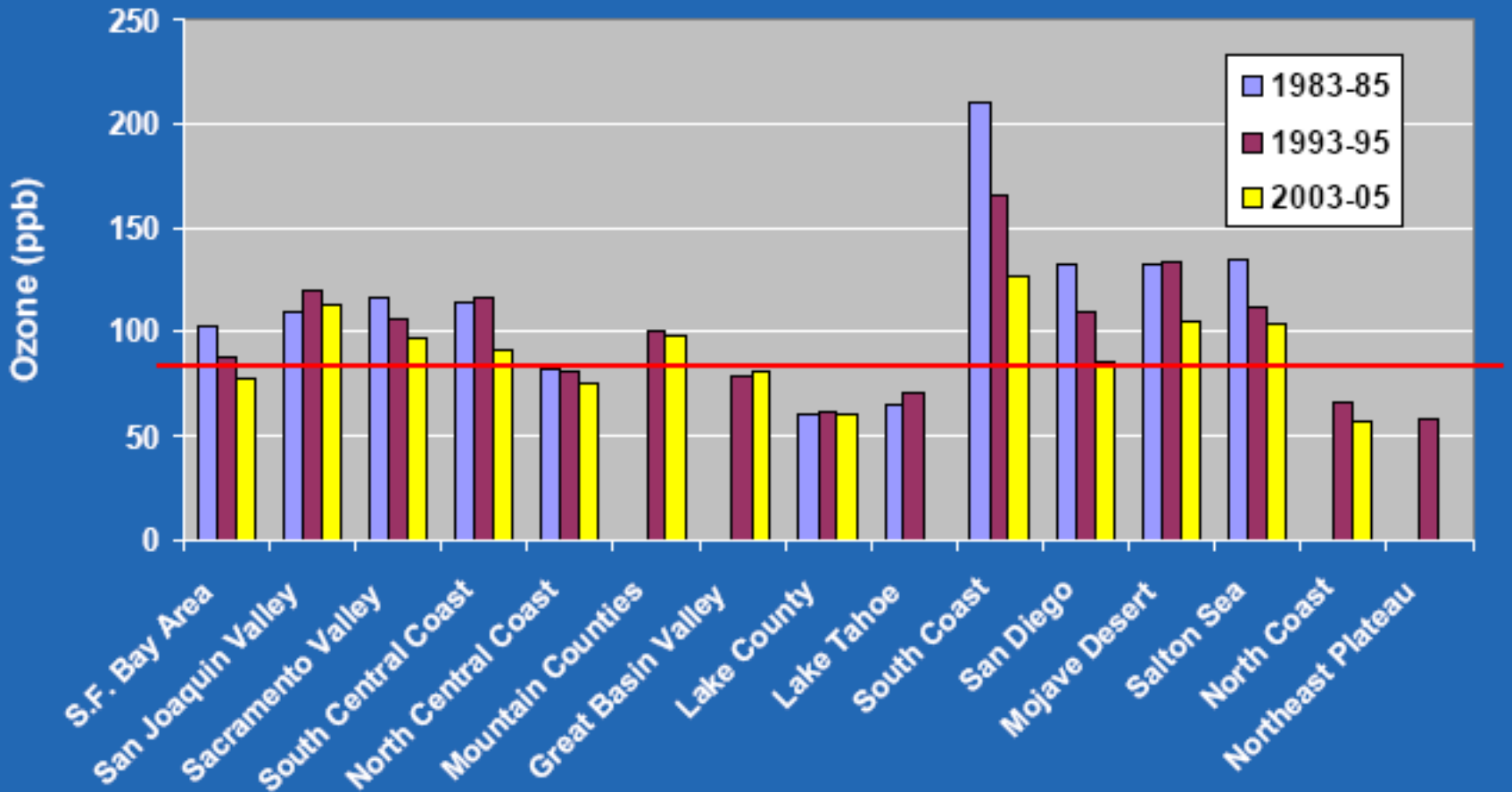
Other SIP Control Measures

- The FCAA requires the area include measures to demonstrate attainment as expeditiously as practicable
- EPA encourages control measures that produce emissions reductions can be approved into SIPs whether or not such measures meet the definition of RACM
- Other controls may be necessary to make attainment date; and avoid bump-up or reclass
- May already be part of the all feasible control measures or reasonable control measures required by the California Clean Air Act (CCAA) and included in the CCAA Plan

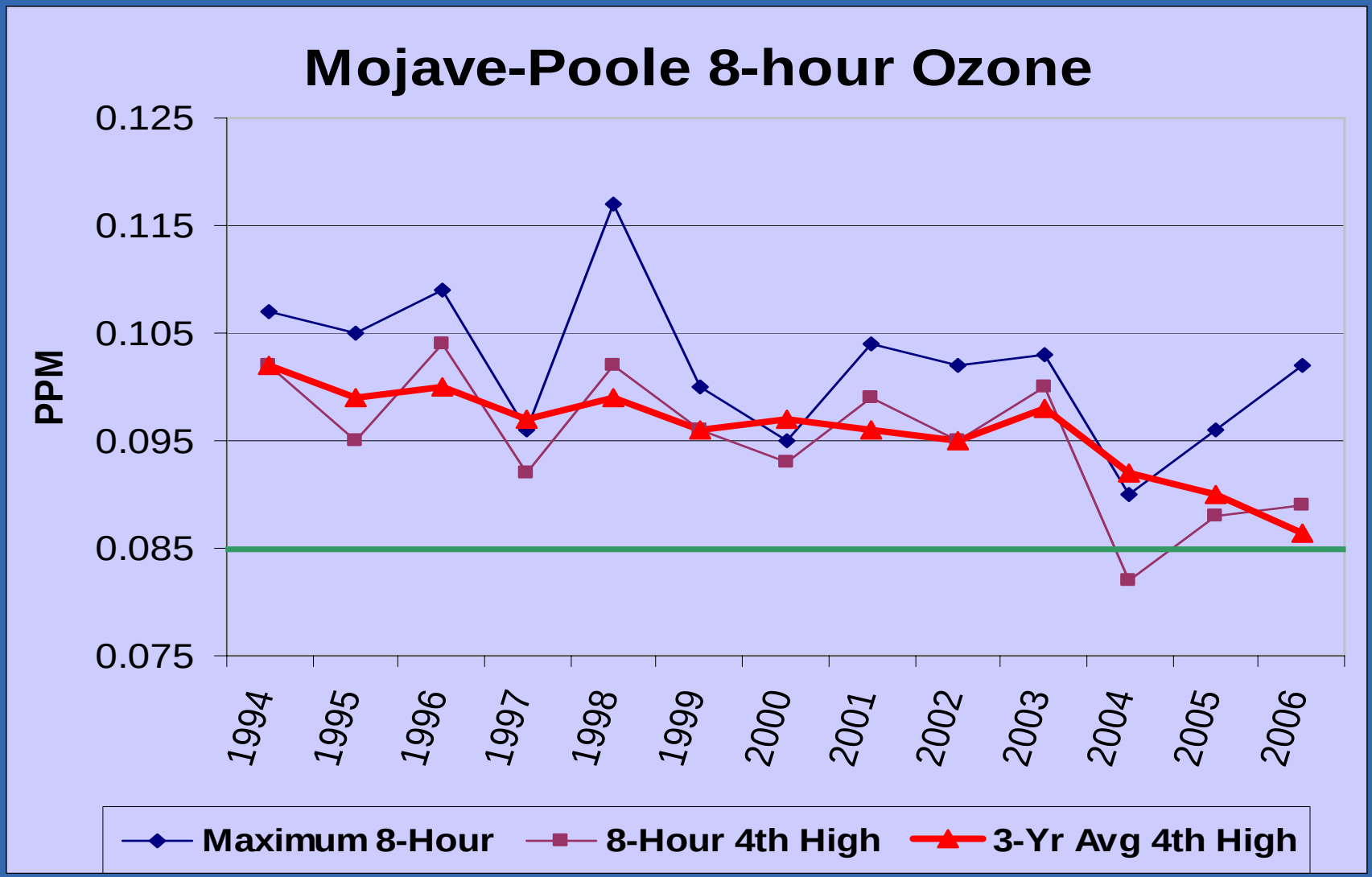
Contingency Measures

- Measures that are required in the event the area does not meet a milestone
- All subpart 1 areas; moderate, serious severe and extreme subpart 2 areas must include contingency measures and should rely on existing guidance for purposes of adopting contingency measures
- Marginal areas that will meet their attainment date do not.
- EPA requires that these should be adopted rules that take only quick additional action to implement

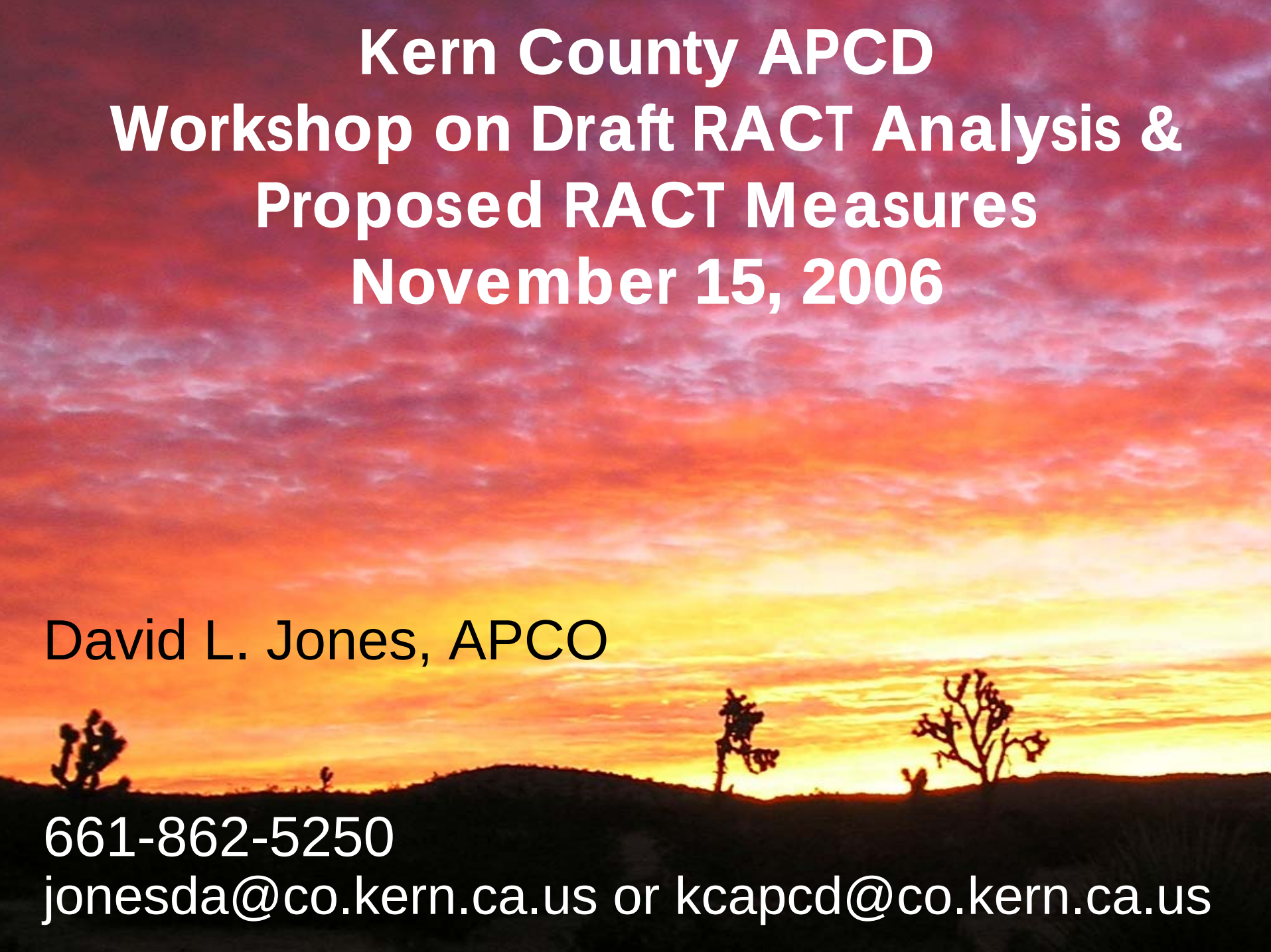
Ozone Trends (8-hour design values)



KCAPCD Design Value Site



Kern County APCD
Workshop on Draft RACT Analysis & Proposed RACT Measures
November 15, 2006



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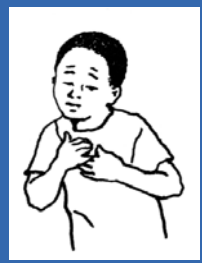
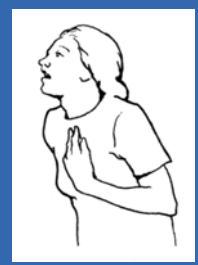
Background Slides

Ozone Irritates Airways

- Symptoms:
  - Cough
  - Sore or scratchy throat
  - Pain with deep breath, or chest pain
  - Fatigue
- Rapid onset, but effect is greater 24 hours after exposure
- Similar symptoms for people with or without asthma





Public Health Risks Are Significant

- Ozone is linked to:
  - Aggravation of lung diseases, increased
  - Hospital admissions
  - Doctor and ER visits
  - Medication use
  - School and work absences
  - Permanent lung changes
- Some Groups Are More at Risk
  - Children and adults who are active outdoors
  - People with lung diseases, such as asthma

Ozone is formed in the atmosphere:

- Precursor pollutants react to form ozone
  - oxides of nitrogen (NOx)
  - reactive organic gases (ROG)
- Ozone formation is complex because
  - nonlinear response of ozone to emissions reductions
  - spatial and temporal variability

Photo: Mark Crosse / The Fresno Bee, 2002

Precursor Emission Sources

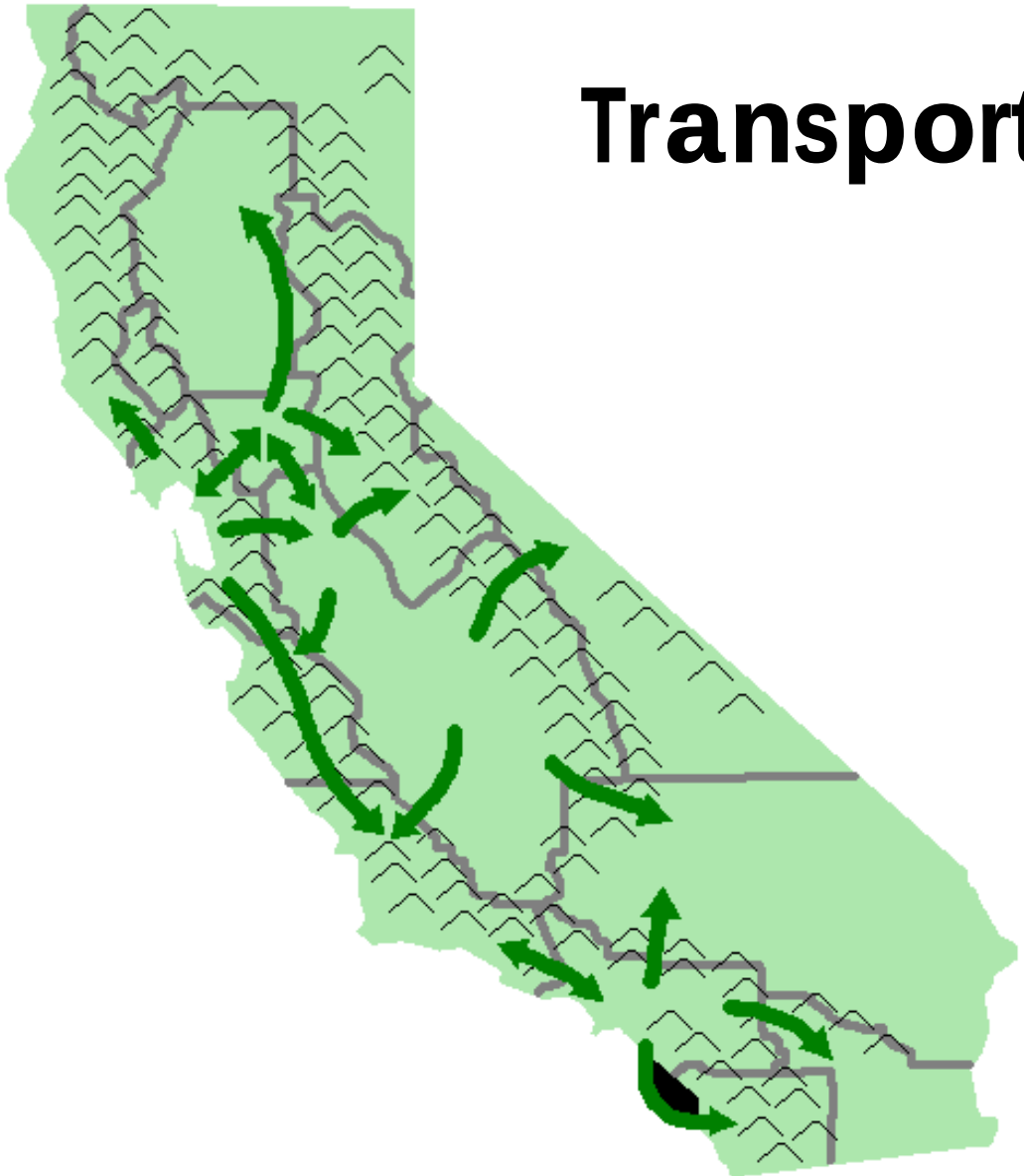
- NOx: cars, trucks, power generation, industry



- ROG: cars, agricultural activities, off-road vehicles, industry, solvent evaporation, natural sources




Transport Couples



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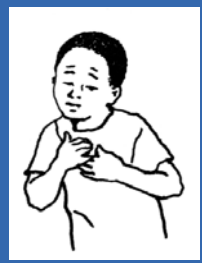

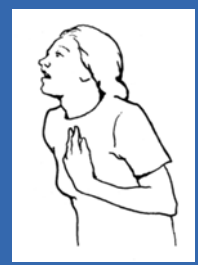

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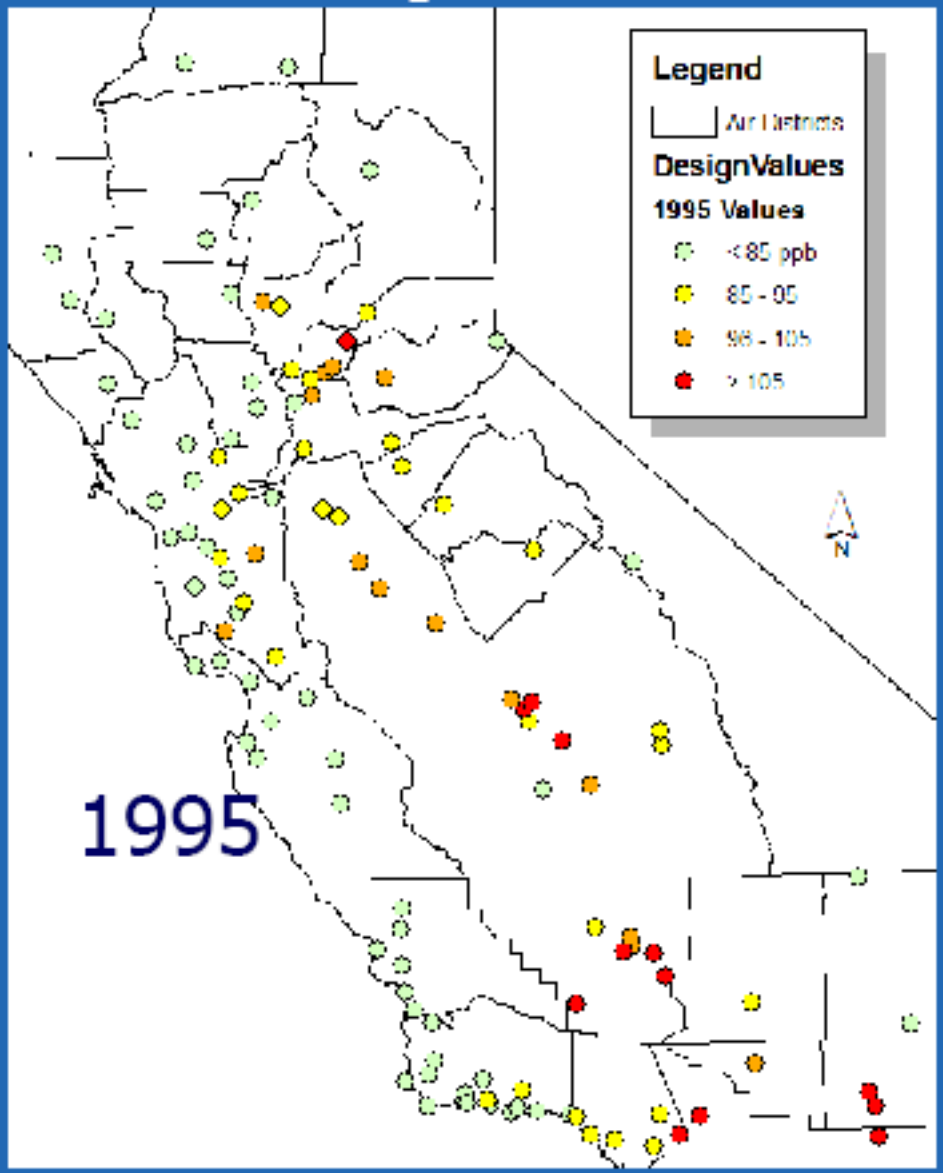
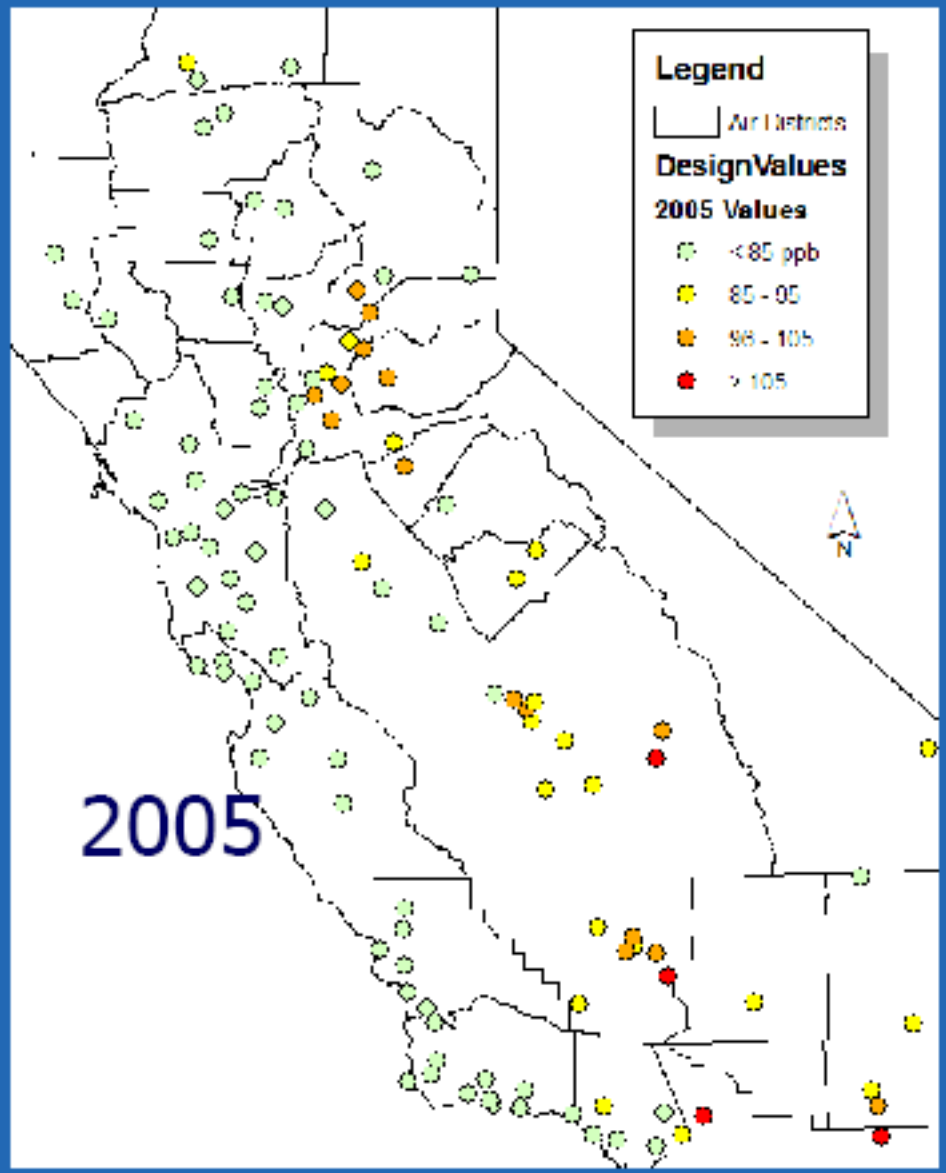
High Ozone
Spatial Extent Reduced





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